

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
8 February 2001 (08.02.2001)

PCT

(10) International Publication Number
WO 01/09520 A1

(51) International Patent Classification⁷: **F15C 5/00**,
H01M 2/12, H02N 1/00

[US/US]; 11187 Huntwicke Place, Cincinnati, OH 45241
(US). QUIRAM, Daniel, Jonathan [US/US]; 6836 Old
Station Drive, West Chester, OH 45069 (US).

(21) International Application Number: **PCT/US00/19785**

(74) Agents: REED, T., David et al.; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217-1087 (US).

(22) International Filing Date: 20 July 2000 (20.07.2000)

(81) Designated States (*national*): AE, AG, AL, AM, AT, AT
(utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA,
CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility
model), DK, DK (utility model), DM, DZ, EE, EE (utility
model), ES, FI, FI (utility model), GB, GD, GE, GH, GM,
HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility
model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,
MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD,
SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT,
TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(25) Filing Language: English

(26) Publication Language: English

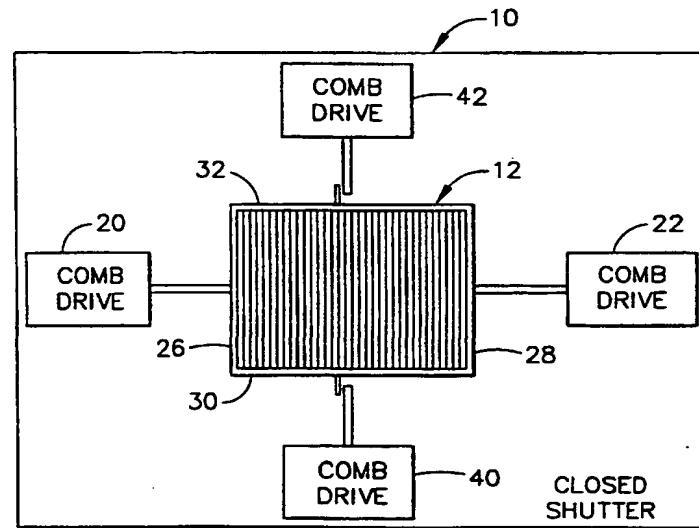
(30) Priority Data:
60/146,625 30 July 1999 (30.07.1999) US
60/175,152 7 January 2000 (07.01.2000) US

(71) Applicant (*for all designated States except US*): **THE PROCTER & GAMBLE COMPANY [US/US]**; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US).

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,

[Continued on next page]

(54) Title: MICROVALVE FOR CONTROLLING FLUID FLOW



WO 01/09520 A1

(57) Abstract: A microvalve (10) for controlling fluid flow, including a body portion (14) having a plurality of spaced openings (18) formed therein, a shutter (12) located adjacent to and substantially parallel with the body portion having a plurality of spaced openings (16) formed therein, a drive mechanism (20, 22) for causing the shutter to move laterally with respect to the body portion so that the spaced openings of the shutter are brought into and out of alignment with the spaced openings of the body portion, wherein the microvalve is in an open position and a closed position, respectively, and, a latching mechanism (36, 38, 40, 42) for preventing the shutter from moving laterally with respect to the body portion.



IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *With international search report.*